

## CLAIMS

1. A system for assisting the regeneration of depollution means (1) associated with oxidation catalyst-forming means (2), and integrated in an exhaust line (3) of a motor vehicle diesel engine (4), in which the engine is associated with common rail feed means (7) for injecting fuel into the cylinders of the engine, including at least one post-injection, and adapted, at constant torque, to implement at least two regeneration strategies (10, 11), at a first level and at a second level, depending on different engine operation control parameters in order to obtain different temperature levels in the exhaust line, the temperature level corresponding to the second level strategy (10) being higher than that corresponding to the first level strategy (11), the system being characterized in that it includes acquisition means (9) for acquiring the exothermic temperature level of the catalyst-forming means (2), comparator means (8) for comparing this exothermic temperature level with a safety threshold (safe\_th) for the catalyst-forming means (2), so that in the event of said threshold value being exceeded while applying the second level strategy (10), the feed means (7) are controlled to regulate progressively at least one of the engine operation control parameters in such a manner as to reduce the exothermic temperature level of the catalyst-forming means (2), and if this level does not drop below the threshold value at the end of a first predetermined time period, to control the feed means (7) to switch over to the first level strategy (11), and if said exothermic temperature level of the catalyst-forming means still does not drop below the safety threshold value at the end of a second period of time, to stop the regeneration strategy;
- in that the feed means (7) are adapted to implement two successive post-injections;
- in that during regulation, the feed means (7) are adapted to reduce progressively the flow rate of fuel in

the second post-injection, and in that the feed means (7) are adapted to reduce the flow rate of the second post-injection by using a correction factor lying in the range 0 to 1 and determined on the basis of the difference  
5 between the exothermic temperature level (NT) and the safety threshold value (safe\_th).

2. A system according to claim 1, characterized in that the correction factor is determined by a PI type  
10 regulator (13) having non-linear gain.

3. A system according to any preceding claim, characterized in that the acquisition means (9) for acquiring the exothermic temperature comprise two  
15 temperature sensors (9a, 9b), one placed upstream and the other placed downstream from the catalyst-forming means (2).

4. A system according to any preceding claim,  
20 characterized in that the engine (4) is a diesel engine associated with a turbocharger (5, 6).

5. A system according to any preceding claim, characterized in that the value of the safety threshold  
25 (safe\_th) is calibratable.

6. A system according to any preceding claim, characterized in that the depollution means (1) comprise a particle filter.  
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7. A system according to any preceding claim, characterized in that the depollution means (1) comprise a NOx trap.

35 8. A system according to any preceding claim, characterized in that the depollution means (1) comprise a SOx trap.

9. A system according to any preceding claim,  
characterized in that the depollution means (1) comprise  
an oxidation catalyst.

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10. A system according to any preceding claim,  
characterized in that the fuel includes an additive for  
being deposited together with the particles of which it  
is mixed on the depollution means (1) in order to

10 facilitate regeneration thereof.

11. A system according to any one of claims 1 to 9,  
characterized in that the fuel includes an additive  
forming a NOx trap.